GARDEN AND FOREST.

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TABLE OF CONTENTS.

	PAGE.
Editorial Articles:—Magnolias as Garden Plants. (With figure.)	161
The Parkman Memorial	162
Forestry and the Abandoned Farm.—*Professor C. S. Plumb.*	162
A Valuable Fruit-tree for the High North.—*C. V. Hartman.*	162
Bull Pine in the West.—*Professor Charles A. Keffer.*	163
Plant Notes	164
Cultural Department:—Flower Garden Notes.—*E. O. Orpet.*	166
A Few Desirable Plants.—*T. D. Hatfield.*	167
The Earliest Daffodils.—*J. N. Gerard.*	167
Christmas Roses.—*B. M. Watson.*	167
Pot Bulbs for Early Spring.—*L.*	167
Double English Primroses.—*E. O. Orpet.*	167
Cyrtopodium punctatum.—*O.*	167
Correspondence:—The Olive and the Lemon in Southern California.—*Wm. M. Tisdale.*	168
Notes from West Virginia.—*Danske Dandridge.*	168
Some Hyacinths and Grape Hyacinths.—*J. N. Gerard.*	169
Recent Publications	169
Notes	170
Illustration:—Magnolia macrophylla, at Wellesley, Massachusetts, Fig. 26	165

Magnolias as Garden Plants.

THE illustration on page 165 of this issue, made from a photograph of a tree in Mr. Hunnewell's garden at Wellesley, in eastern Massachusetts, shows that this southern plant is capable of flourishing in regions of far greater cold than that which usually prevails in its native home. Of all the Magnolias, a genus celebrated for its large and handsome flowers and large leaves, this species produces the largest flowers and leaves, and the flowers and leaves of no other inhabitant of extra-tropical forests equal them in size.

Magnolia macrophylla is a stately tree, with horizontal wide-spreading branches, and in its native forests sometimes attains a height of fifty feet and produces a trunk eighteen or twenty inches in diameter. The leaves, which are clustered at the ends of the stout branches, are bright light green on the upper surface and silvery white on the lower, often thirty inches long and nine or ten inches broad, and form a splendid setting to the creamy-white fragrant flowers which, when fully expanded, are often twelve inches in diameter. Photographs or words cannot express the beauty of one of these trees when it is in bloom, or convey any idea of the solemnity of the great flowers, which one cannot contemplate without a feeling of reverence and awe and a sense of wonder that Nature in her wisdom and for some good purpose has placed in our forests of Oaks and Pines such a marvel of rich and gorgeous beauty.

Magnolia macrophylla belongs to a region of luxuriant and varied forest-growth, its home being at the base of the southern Alleghany Mountains, where it is distributed from western North Carolina and south-eastern Kentucky to middle and western Florida and southern Alabama, extending also through northern Mississippi and inhabiting central Arkansas. Known only in a few widely separated stations in the Atlantic states, this tree is more abundant west of the Alleghany Mountains, and seems to grow to its largest size in some sheltered limestone valleys of northern Alabama. Protection from the wind is essential to it, as its great delicate leaves are easily torn to pieces and destroyed by the wind, and it is always found in small groves in forest-glades or little valleys, surrounded and often overshadowed by Swamp Chestnut Oaks, Dogwoods, Hickories and Gum-trees. It is a century since the elder Michaux, the French botanist and traveler who explored eastern North America under the auspices of the French Government, discovered this tree near the town of Charlotte, in North Carolina, but it has never been much cultivated or become very well known in gardens. That it is not more often seen in those of the northern states is certainly surprising, for, after its first years when young plants are better for a little protection, it is very hardy and begins to flower when only a few years old. In Europe, especially in England, Magnolia macrophylla feels the want of the hot summers and dry autumns of eastern America to ripen its wood, and, like many other North American trees, does not flower satisfactorily. This is true of most other Magnolias, which, as a general rule, are more satisfactory garden plants in the eastern United States and in China and Japan than in other parts of the world—a fact that is explained by the distribution of the genus which is now chiefly confined to eastern America and eastern Asia, although four species extend into the forests of the tropical eastern Himalaya.

Twenty Magnolias are known, although it is not improbable that others will yet be found in the almost unexplored forests that cover the mountains of south-western China, where trees of various genera abound and where one species of Magnolia is already known.

The Magnolias can be grouped into two sections. Those of the first section produce flowers before the appearance of the leaves, while in those of the second section the flowers do not open until after the leaves have grown to their full size. All the American Magnolias belong to the second of these sections, the species with precocious flowers being confined to Japan, China and India. To this section belong the Chinese Yulan Magnolia, Magnolia conspicua, and its various hybrids and varieties; Magnolia Kobus, a large tree of northern Japan; Magnolia salicifolia, of northern Hondo, a small shrubby tree with fragrant foliage, recently introduced into cultivation; the shrubby Magnolia stellata, and Magnolia Campbellii, of Sikkim, a stately tree with rose-colored or pink flowers. This tree, which, unfortunately, is not hardy in the northern states, has produced flowers in southern Ireland, and it may possibly thrive in our southern states, where its cultivation certainly should be attempted.

Of exotic species of the first section Magnolia hypoleuca is best worth cultivating in this country. It is a noble tree, growing sometimes in the forests of Yezo to a height of one hundred feet, with large leaves arranged in whorls at the ends of the branches, and large flowers with white sepals and petals, and prominent cones of bright red carpels. In foliage and flowers Magnolia hypoleuca resembles our American Magnolia tripetala, but it is a larger and handsomer tree and much hardier in the northern states.

In the great evergreen Magnolia of the southern states the temperate countries of the world have the most beautiful evergreen tree known in gardens. With its smaller but more fragrant flowers and its lustrous leaves, deciduous at the north and persistent at the south, the Swamp Bay, Magnolia glauca, is an ornamental tree of peculiar charm and beauty. These two and Magnolia macrophylla are the most valuable of the American Magnolias among ornamental trees, but the other species have each their peculiar beauty, and Magnolia acuminata is also an important timber-tree.

We have desired, in writing these notes on Magnolias, to call attention to the fact that our climate is specially suited to the cultivation of these trees. All the American species, with the exception of the evergreen Magnolia of the south, are perfectly hardy as far north as eastern New England. Magnolia hypoleuca and Magnolia Kobus are apparently as hardy here as in their native forests of Yezo, and promise to grow here to a large size. Magnolia Watsoni and

Magnolia parviflora, of China, deciduous-leaved species with beautiful, fragrant, cup-shaped flowers, are both hardy here and delightful garden-plants; and all the precocious-flowered Yulan race grow and flourish here with as much freedom as in the gardens of China and Japan, spreading, when all deciduous-leaved trees are still bare of foliage, marvelous clouds of snowy white or purple bloom.

The contributions to the Parkman memorial, of which we spoke last week, have already been so liberal that the success of the project is put beyond question. It is the desire of the committee, however, that as large a number of people as possible should be allowed to assist in this work. Francis Parkman inspired his readers with feelings akin to personal affection, and all who desire to manifest this sentiment of regard ought to be allowed to help in this commemorative work. Indeed, the committee have reached a point where they would prefer to receive the contribution of a single dollar, if it is given with enthusiasm and affection, rather than a much larger sum from one who subscribes simply to be in the fashion. We repeat that contributions of any amount can be sent to Mr. Henry L. Higginson, 44 State Street, Boston.

Forestry and the Abandoned Farm.

IN the "Descriptive Catalogue of Farms in Massachusetts, abandoned or partially abandoned," issued by the State Board of Agriculture, are descriptions of farms containing considerable land growing up to forests. The woodlands are referred to after this manner, in the list of descriptions of farms: "It is estimated that there are sixty tons of hemlock bark on the place." "Estimated that there are 200,000 feet of lumber on the place." "I think there is $2,000 worth of wood and timber on the place, principally pine and hemlock." "It is estimated that there are over 2,000 cords of wood on the place."

Believing that in the future, perhaps in my own time, these cheap lands of New England may be valuable as timber preserves, if nothing more, I entered into correspondence with a person who advertised in the catalogue referred to, a property of 330 acres in Berkshire County, on which were 195 acres of woodland. I had simply a forestry investment in mind. Last November, therefore, having occasion to go to New England on other business, I took the opportunity to visit this farm, which is only about twenty-five miles from my birthplace.

The place was owned by a man who is now farming in Kansas. Seven years ago he suddenly packed up his goods and left his old home deserted, and went west. He was prosperous in New England, and left his buildings in good condition. Since then they have been untenanted. This farm was first offered for sale at $1,200, and the price was gradually reduced to $700, as no one would buy. There are two houses on it and three barns, one house and two barns being in fair condition. The buildings are located on the summit of a magnificent hill, with a very easy approach, from which is obtained a mountain view of great beauty. The buildings stand in the midst of a large amount of smooth meadow and pasture land. The many acres of grass land are unusually free of stone, and a mowing-machine can be used to advantage over it all.

Back from the pasture and tillable fields, surrounding the entire property, is the forest of various stages of growth. I spent the best part of a day tramping through the woodland and looking into its possibilities. The trees are mainly White Ash, Yellow Birch and Sugar Maple. There is also some Spruce and Hemlock. White Ash predominates, and many trees have a diameter of six inches. The latest clearing on the farm is growing up to Beech. Although not specified in the description, there was an additional wood lot of forty acres, and that was "thrown in" without increasing the price.

This farm of 361 acres, containing over 225 acres of woodland, I bought for $700, about $1.90 per acre, including five buildings, three of which can be put in good repair with a slight expenditure of money. The woodland, however, was the main consideration. Though believing that this property might at least pay four per cent. on the investment, before buying I discussed the wisdom of such a purchase with two men who ought to be capable advisers. One of these is a well-known farmer in a Massachusetts town, and an old friend of mine, who has had large experience in woodland property in New Hampshire and Massachusetts. He expressed it as his opinion that such woodland would prove a good investment, and stated that he already had bought and was holding some 200 acres of just such property. His advice was to buy by all means. The other person with whom I consulted was the Chief of the Forestry Division of the United States Department of Agriculture, Mr. B. E. Fernow, and his opinion was also favorable to the purchase of the land. There is certainly no great risk involved, inasmuch as one can easily get nearly 1,000 cords of wood from the property now.

Here is a farm, within four miles at its nearest point of a station on the Boston and Albany Railroad, on a decent highway, with a fair set of buildings, with plenty of good arable land and excellent future timber resources, selling at a lower price than land can be bought for anywhere in the west to-day—and this in the very heart of civilization. The scenery gives spacious views of the character well known in Berkshire County. A beautiful mountain lake is only half a mile away. Lenox and Stockbridge are each less than fifteen miles distant.

Why has such a place lain vacant so long? So far as I can ascertain there are only two serious objections against this as a home. First, its isolation; secondly, the snows of winter. The post-office, church and railroad station are four and a half miles away, and it is a mile to the nearest neighbor and the school. In winter the snow accumulates to a great depth, and sometimes it is difficult to travel across country on account of the drifts.

But land can be bought here cheap, and it seems to me that this is a good time to buy these woodlands when so little invested will buy so much. Our forestry problems are receiving more and more attention. Schools of forestry will be established soon, and we shall have trained foresters in America. Notwithstanding the fact that cord wood is cheap in New England to-day, and the demand is weak in places, the value of American timber must increase rather than decrease in future years. It is my purpose to attempt a systematic handling of this woodland in order to ascertain whether an annual source of revenue cannot be derived from it. As New England was the part of our country first denuded of its forests it would seem appropriate that in this region the first attempt should be made to establish a forestry system. It is true that some forest-planting has been done on the sandy shores of Cape Cod, but the rocky hills of western Massachusetts also offer a good field for working out special forestry problems. The State Agricultural College of Massachusetts is already giving increased attention to forestry, and it is safe to assume that the time is not far distant when, with greater facilities for education in forestry, the woodlands of the state will be valued as a perennial source of revenue.

Purdue University, La Fayette, Ind. *C. S. Plumb.*

A Valuable Fruit-tree for the High North.

VAST territories of the North American continent, such as Northern Canada, British Columbia and Alaska, comprising tracts as extensive as several European kingdoms, are outside of the geographical range of the common fruit-trees. No practical method has yet been proposed for the acclimatization of fruit-trees in the high north, and hitherto there has not been much prospect of the discovery of any new fruit-tree especially adapted for these cold regions.

Fortunately, we have a new fruit-tree now which is suited to the gardens of the icy north, a tree that is absolutely hardy and produces unfailing crops of delicious and

fine fruit. It is the first fruit-tree for the coming orchard of the high latitudes. I can write with much confidence about the tree because it has been tried for several seasons in the high latitudes of Europe above the limits of other hardy fruit-trees.

The tree is a form of the Mountain Ash, Pyrus aucuparia. The fruit, so far from being acid and rough, has a deliciously sweet-sourish taste, and is twice as large as that of the common type.

Ten years ago, I accidentally saw an account of this new fruit-tree in an Austrian horticultural paper, and in the belief that it would prove a desirable acquisition for the Scandinavian Peninsula, Finland and Russia, where the same cold climate prevails as in the northern countries of the New World, I drew the attention of the Director of the Horticultural Department of the Royal Swedish Academy of Agriculture, Mr. Erik Lindgren, to this valuable novelty and proposed its cultivation. The tree was introduced in Sweden in 1885, and has proved to be absolutely hardy, having ripened its fruit even as far north as Pitea in latitude 66°, where no other fruit-trees can be cultivated.

The home of this fruit-tree is the high mountain region of northern Machren, in Austria. The Mountain Ash is a characteristic tree of the mountains of Machren and also of Schleisen, and appears there in such masses that forests are formed of these trees. About ninety years ago, some boys who were watching cattle near the small village of Peterwald discovered that a certain Mountain Ash in the forest had unusually large and sweet fruit. A farmer, Christof Harmuth, who had some knowledge of horticulture, made an experiment and grafted this form upon a young wilding near his farm. When the grafted tree had grown up and produced fruit, he found, to his satisfaction, that it was even larger and better than that of the mother tree. New grafts from this improved form gave a still finer quality of fruit. The new fruit-tree soon became popular in the neighborhood of Peterwald, and trees were planted on nearly every farm. The climate of Peterwald is very cold. The altitude above the sea is nearly 2,300 feet. Oats and barley can be cultivated only in the valleys, but often before the harvest-time in September the oats are spoiled by the snow. At the altitude of 1,750 feet the common fruit-trees fail to give any regular crops, and at 2,000 feet only a kind of Cherry-tree, Prunus Avium, ripens its fruit. Strangely enough, "die süsse Eberesche," or the Sweet Mountain Ash, as the tree is called in Peterwald, has been confined to this small place until quite recently. The real importance of the new fruit was perceived by Mr. Franz Kroetzl in 1885, who described the tree and reported on it, with the result that the Minister of Agriculture paid special sums for two years for the propagation and spreading of the tree among the inhabitants of the high mountain regions of Austria.

In Sweden the tree has been largely distributed by Mr. Lindgren, who, in a report to the Swedish Academy of Agriculture, writes: "During 1892 several young trees of the Mountain Ash have produced plenty of fruit, and I have consequently had better opportunities than during previous years to try it. I consider this fruit-tree as very valuable, especially for the northern provinces, and it should be grown in every district. The fruit, when slightly touched by frost, has a delicious taste. Even persons that are rather particular in matters of taste find this fruit very good. The tree has also a more elegant appearance than the common form, and the wood ripens earlier in the autumn."

The Mountain Ash belongs as an indigenous tree to the very coldest regions of the world, and this variety is undoubtedly as hardy as the type. In Europe the Mountain Ash appears at the North Cape, on the coast of the Arctic Ocean, although there only as a shrub; it is also to be seen in Greenland and in America.

In the United States this fruit-tree will prove a valuable acquisition to many large mining towns in the high altitudes of the Rocky Mountains in Colorado, Nevada, etc. In the small gardens here, where only vegetables and flowers are now grown, whole orchards may be planted. No improvement of the soil is needed for this fruit-tree, that deserves attention for use even as an ornamental park-tree. The light greenish tint of the leaves is always beautiful, and the white flowers in the spring, as well as the large clusters of brilliant red fruit in the fall, are very attractive. The fruit will serve for the same purpose as the expensive cranberries bought from the east. It can also be used as a preserve, in pies, etc. Served as a dessert fruit it is showy and attractive in glass, and it compares favorably with many other small fruits.

Through continued culture and careful selection, still finer varieties will undoubtedly be obtained from the present form, as has been the case with all other fruits.

The fruits of the Sweet Mountain Ash are almost pear-shaped; the leaves are larger than those of the common Swedish form, the segments longer and narrower.

Botanic Garden, Stockholm, Sweden. *C. V. Hartman.*

Bull Pine in the West.

DURING the period of most rapid settlement of the states west of the Mississippi River, the only Pines offered in quantity by the nurserymen were the Scotch, Austrian and White Pines. Of these the two former have been found much better adapted to the greater part of Kansas, Nebraska and the Dakotas than the latter, but it is believed that the Rocky Mountain form of the Bull Pine, Pinus ponderosa, Douglas, will prove the most useful species of the genus for planting on the plains, because of its ability to withstand extreme drought. It is a distinctly western species, ranging from the Pacific coast, where it attains its greatest development in Washington and Oregon, to the valley of the Niobrara River, in Nebraska, and South Dakota. For cultivation in the Plains, seeds should be secured from trees on the eastern slopes of the Rocky Mountains, the western form of this, as of many other conifers, not being hardy on this side of the continental divide.

I was especially interested in this species as it grows along the Niobrara River (longitude about 99° 45′), and at Fort Robinson, in north-western Nebraska. Ten miles north of the town of Ainsworth, the Bull Pine is found on the slopes and crests of gulches which break from the high level of the prairie to the Niobrara valley. The soil is an extremely fine, light-colored clay sand, with numerous pockets of almost pure, rather coarse, sand. No rain had fallen for months, but in all the "pockets" facing north the soil is moist within two inches of the surface, even near the crest. The most vigorous trees are found in these pockets, but isolated specimens stand in the driest, most exposed southern slopes. The bottoms of the gulches are filled with deciduous trees, mostly Box Elder and Green Ash. The largest Pines seen were not more than eighteen inches in diameter breast-high, and the tallest tree found measured fifty-five feet high. The gulches are fenced for pasture, and no trees younger than five years were found. A very few Pines were growing on the level prairie, but these were near the crest of the gulch. This shows, however, that if protection from fire and stock could be had, the Bull Pine would seed the ground.

At Fort Robinson this Pine occupies the slopes and crests of the ridges, and even the high buttes, with precipitous sides, support a sturdy growth of the Pine on their tops. A careful examination of the timber reservation at Fort Robinson shows the urgent need of protection against stock and fire. The settlers in the vicinity are permitted to use the reservation as grazing-land. The higher slopes, rising 200 to 400 feet above the valley, are covered with widely spaced Bull Pines in sufficient numbers to insure complete seeding and a close stand if protection could be secured. The soil is a very dry sandy clay, with coarse gravel, and the herbage on the hills is scanty. The growth in this dry region is necessarily slow, and it is to be hoped the reservation, which was established to supply the adjoining fort with fuel, can be thoroughly protected, as it

affords a fine opportunity to test natural reforestation under unfavorable climatic conditions.

The Bull Pine was planted in the Sand Hill experiment referred to in the article on Banksian Pine, but a very poor stand was secured. At Franklin, Nebraska, on the south line of the state (longitude about ninety-nine degrees west), the Bull Pine has been more thoroughly tested than anywhere else in the west. Notwithstanding the unprecedented drought of the past two years in that region, this Pine is vigorous, far surpassing the Scotch and Austrian Pines. I measured two trees that were nine years from the seed which were over eight feet high. The growth of Scotch Pine is somewhat more rapid, but less vigorous. The soil at Franklin is the typical clay loam of the west, and success there, coupled with the northern range of the species, indicates its special fitness for forest purposes throughout, at least, the northern part of the plains.

Washington, D. C. *Charles A. Keffer.*

Plant Notes.

Deutzia parviflora.—A correspondent writes that he has seen this plant recommended, but that he does not find it in the catalogues of some of the largest growers of ornamental shrubs. There is no reason why so good a plant should not be generally offered by nurserymen. Deutzia parviflora was figured in Garden and Forest as long ago as 1888, and at that time we stated that it had been cultivated for some years in the Arnold Arboretum, having been received from the St. Petersburg Garden. It is one of the most hardy and altogether desirable of Asiatic shrubs which will grow in this climate, and it is the most beautiful of the three or four Deutzias which are grown here. A glance at the picture of a flowering branch of this plant in vol. i., page 365, will show that it is altogether different in appearance from the other Deutzias. It grows to a height of four or five feet, making a compact bush with brownish yellow bark and dark green elliptical leaves. The flowers are borne in corymbs, and appear in this latitude the last of May or the first of June. They are pure white, and borne in such numbers that they quite cover the upper portions of the stems.

Puschkinia scilloides, var. compacta.—This charming little plant is now flowering in sheltered places. It is best described as a light blue striped Squill. The groundwork of the petals is white, a pale blue stripe running down the centre and sides of the segments of the perianth. The flowers are borne in spikes on stalks about six inches high, and open with the development of the leaves. In the type the flowers are few in number, but in this variety they are abundant. It is perfectly hardy, and should be planted in masses with Squills and the Chionodoxas. Like these plants, they should be allowed to grow in the same place for several years, at least, not being lifted until they become crowded. It is a native of eastern Europe and western Asia. Puschkinia libarotica is a synonym of the type, which is inferior in every way to the variety described.

Scilla bifolia.—This is one of the early-blooming Scillas or Squills, which is not so common here as S. Sibirica. It is a native of southern Europe, is perfectly hardy, and, although not so showy as the better-known S. Sibirica, is well worthy of a place in every garden where it is desirable to obtain variety. The flowers are of good size and abundant; they are deep blue, almost purple, and sometimes have a reddish tinge. The leaves appear with the flowers, and are generally two in number, hence the name. They should be planted in masses in well-drained soil in a sunny position, and not lifted and separated until this is necessary. The Dutch Yellow Crocus, now known as the Large Yellow Crocus, a variety of C. aureus, opens at the same time with Scilla bifolia; the two planted together make a pleasing contrast and a very bright spot in the garden in the cold spring-time.

Chionodoxa gigantea.—This Chionodoxa is of recent introduction. It is probably a variety of C. Luciliæ, and is sometimes offered under the name of C. Luciliæ, var. grandiflora. It is, nevertheless, a most distinct plant, well known and recognized by gardeners and dealers in bulbs. The flowers are much larger than those of C. Luciliæ, and borne on short nodding scapes, two or three in number. The color is a very pale delicate porcelain-blue, somewhat reminding one of the Hyacinth Czar Peter. It is certainly one of the best and most distinct of all the Glories of the Snow, and should be more commonly planted. It is perfectly hardy, and succeeds admirably if cultivated in the same way and in the same beds as ordinary Chionodoxas and Squills. It is in bloom now, but is a trifle later in flowering than C. Luciliæ.

Anemone blanda.—This lovely little flower, one of the earliest of its class, and much earlier than its relative, our native Hepatica, is an inhabitant of mountain regions in Syria, Greece and other parts of south-eastern Europe and of south-western Asia. Transplanted to American soil, it thrives remarkably well in suitable situations and is hardier than would be supposed, considering its natural habitat. It is a tuberous-rooted species, sending up slender, short stems three or four or more inches high, bearing much-divided leaves and solitary flowers. These blossoms, expanded, measure from an inch and a half to two inches across and are composed of numerous narrow petals, varying in color from deep blue or a purplish tint to almost white in the different varieties or forms. In mild weather these flowers open in February and March, quite as early as the better-known cheerful yellow-flowering Winter Aconite. The plant requires a good light, warm, well-drained soil, one composed of sand and loam being excellent; a warm sheltered situation or southern exposure, protected from other sides, is the best. A spot that is so hot and dry in summer that scarcely anything will live on it seems more suitable than a moist and richer one. The plants will thrive where there are only three or four inches of soil on top of solid rocks and which in summer often becomes dry and parched. As the leaves ripen and dry off early in the season the roots are dormant in the hot summer months. This species is perfectly hardy without protection in a climate like that at Boston, Massachusetts, where the mercury sometimes falls many degrees below zero of Fahrenheit. In the warm corner of a rockery, on the south side of a house close to the foundation-walls and in other similar situations it will thrive and take care of itself when once established and kept free from encroaching weeds and other plants. The tubers should be planted in the autumn a couple of inches deep. Their increase is usually slow.

Hippeastrum vittata superba.—A remarkable specimen of this plant was exhibited by Mr. H. H. Hunnewell in Horticultural Hall, Boston, two years ago, for which Mr. Harris, his gardener, was awarded a silver medal. It is again in splendid bloom. This variety is one of the best of the older sorts, and enters into the parentage of a large percentage of recent kinds. Mr. Hunnewell's plant carries eighteen scapes almost two feet long, nearly all of which bear four flowers from five and a half to six inches in diameter. The name is due to the red and white stripes running lengthwise through to segments of the perianth. Hippeastrums, or Equestrian Star Lilies, have rapidly increased in popularity during late years. For some reason, until recent years, they have been very expensive and scarcely within the reach of persons of moderate means. There is little need to buy the high-priced varieties when seedlings can be raised so easily. In three places near Boston 600 seedlings were raised last year. The majority of these will probably bloom next winter. Hippeastrums need a resting season, though never to be thoroughly dry, and they flower mostly in April. Growth commences with some kinds early in the winter, and continues slowly. They force easily, and, although their natural season for flowering is April, they can easily be brought into bloom a month earlier.

Boronia megastigma.—This plant, which is now rather largely grown in London for house decoration, is only

Fig. 26.—Magnolia macrophylla, at Wellesley, Massachusetts.—See page 161.

found in a few private gardens in the United States, and commercial florists have not yet learned its value; or, perhaps, its rarity here is due to the supposed difficulty of cultivating hard-wooded Australian plants. This Boronia is a delicate-branched shrub with small leaves, divided into from three to five narrow rigid leaflets, and small axillary subglobose flowers, maroon color on the outer surface of the petals and yellow on the inner. The value of the plant is in the delicate and delightful fragrance of the flowers, a small specimen perfuming a whole house. Plants are usually propagated from cuttings of half-ripened wood, which must be carefully watered and shaded, as they are extremely sensitive to bright sunlight or excessive root or atmospheric moisture. Plants may also be raised from seed, which can be obtained from German or Australian seed dealers, large quantities being collected from wild plants in the Australian bush. The most successful cultivators here plant the young plants in the open ground in summer, but are careful to shade them with lath frames from the direct rays of the sun, and in winter grow them in a low temperature, bringing them gradually forward in greater heat when they are wanted to flower. They are planted out again during the second summer, and, after flowering again the following winter or spring, when the plants should be about two feet high and as much through, they are thrown away and replaced by younger specimens. A plant placed in an ordinary living-room when the flowers are opening should remain in good condition for two or three weeks, filling it with a delicate fragrant odor which is slightly pungent, like that of most other flowers of the Rue family, to which Boronia belongs. London florists find their profit in selling bushy well-flowered two-year-old plants for five shillings each, and in this country many people, if they once knew this Boronia, would gladly pay two or three times five shillings for equally good plants.

Cultural Department.

Flower Garden Notes.

THE unusually late spring makes garden work a week or two later than in ordinary seasons. Though planting cannot be done now, the preparation of the soil can go on, and when herbaceous plants show signs of activity changes can then be quickly made. The delay caused by the late spring enforces what has been advised before—that fall planting is always preferable for this class of plants, since in most cases one can judge better of the habits and height while the tops are on the plants. We find each year that some kinds will outdo themselves in vigor, and need to be moved further back, divided or thinned. If there is doubt now as to how the alterations should be carried out it is better to wait until another year, and make careful note during the growing period, so that the necessary changes may be made in the fall.

The planting of shrubs and conifers should be done now if they have already been lifted to prevent an early start of the buds. If this provision has been taken there need be no risk in planting until a month later. When planting is well done it is done for all time, and it is best to have the ground well dug at least eighteen inches deep. This can be accomplished by trenching or double digging the soil and mixing the manure well into the bottom, for if the roots are encouraged to go well down there is much less danger of injury from drought in hot weather; besides, trees and shrubs take hold more quickly and thrive better.

Magnolias should be planted in the spring. They are often difficult to establish, but when well started are among the best of flowering trees. It often happens that only small plants are obtainable, especially of the rare forms. It is well to grow these on in pots for a year until they are well rooted, and then transfer them to the places assigned to them. The soil should be good to a depth that will make future transplanting unnecessary, for Magnolias are the most impatient of root-disturbance of all our trees. Hot drying winds in exposed places make sad work with newly moved trees.

Young trees or conifers planted in rows to grow on for later use should be moved at least once in two years to insure a good number of young fibrous roots in a compact mass. Young stock grown in this way is worth twice as much as stock that has not been transplanted, and if the room can be spared to shift them, the labor is not too great when the results are considered. We find that this biennial moving does not in the least interfere with the season's growth of evergreens. The check given to the growth of deciduous trees and shrubs benefits them by making well-balanced heads, with fewer strong shoots that have to be pruned out later on. Those who wish to add to their collections new and interesting novelties as they appear, realize the value of this reserve nursery, and know, also, that newly purchased or rare trees are often too small to plant at once in permanent positions. If these are allowed a year or two in a temporary place, so as to become acclimated and of larger size, an opportunity is meanwhile afforded to select the best place for their permanent planting, and the planting of a tree needs careful consideration with a view to its maturity.

A reserve border of herbaceous plants is also desirable, made up of kinds recently raised from seed, and which will not flower for a year or more; of duplicates, others that are on trial as to hardiness or desirability, and new and unknown sorts, as a lot recently raised here from seeds received from Asia Minor. These unfamiliar plants should be kept where they are not likely to be rooted out by those unfamiliar with their appearance when the borders are weeded. We have to mourn the loss of many plants in this way, but a straight row in the reserve border is comparatively free from this danger. Such a border is useful, too, to fill up losses.

Narcissi are coming on better this year than usual, and we shall soon be able to cut the first flowers from the borders. Hardy Narcissi are more useful than is generally supposed. They provide the first outdoor cut flowers; they have a strength and beauty all their own, and last much longer than those forced indoors, for the sorts that are best as hardy plants are too valuable to be grown for forcing. They have also more substance, with distinct contrasts in coloring. They are for the most part of garden origin, the result of the hybridist's skill, and not mere wild forms, although the wild forms have much to recommend them. The substance of Horsfieldii, Empress, Emperor, M. Foster, Henry Irving and Golden Spur constitutes the value these species have when cut for use indoors. The continued cold of the past winter seems to have suited the Narcissi well. There has been no early start, with succeeding chills, such as occurred a year ago, and the tops have none of the seared look that they took on then. A good display of flowers is promised soon, and a healthy growth of the bulbs afterward.

The newly introduced Spanish forms of Narcissi have disappeared almost to a bulb; they proved unsuited to our climate, while, as already stated, the garden hybrids have the best constitutions and multiply most quickly.

South Lancaster, Mass. *E. O. Orpet.*

A Few Desirable Plants.

A REMARKABLY handsome specimen of the Crimson Rambler Rose is now in bloom in one of the greenhouses belonging to H. H. Hunnewell, Esq., Wellesley, Massachusetts. There can be no doubt that this Rose is a decided acquisition. It has been thoroughly tested during the long and severe winter just past, and it has come through in even better condition than the majority of hybrids. It appears to belong to the robust Japanese form of Rosa multiflora, and is hardier than the Polyantha type. It is a Rose of exceptional value as a pot-plant, judging from the specimen grown here. It is trained in pyramidal form and is completely covered with handsome clusters of deep crimson flowers. Evidently the current season's bloom is produced on the previous year's growths, which now are rapidly stretching out and promise to attain five or six feet in length on an undeveloped specimen. Strong plants are said to form shoots from ten to twelve feet long. On a pot-plant these shoots will be far too rambling in character, and in order to keep the plants in convenient shape for handling, they will need a little training—say, into balloon, fan or pyramid form, according to the grower's fancy.

Another climbing Rose now competing for favor is the Dawson Rose (R. multiflora, var. Japonica × General Jacqueminot), raised by Mr. Jackson Dawson, of the Arnold Arboretum, Boston. The flowers are deep pink, almost red, borne in clusters, and a trifle larger than those of the Crimson Rambler, to which it will be a fitting companion.

A few days ago I saw a plant of Muhlenbeckia complexa used as a basket-plant in the conservatories belonging to F. Simpson, Esq., of Saxonville, Massachusetts. I observed many years ago a plant of M. complexa which grew along the house

of Mr. J. C. Niven, curator in the old Botanic Gardens at Hull, England. It was diffuse rather than climbing, and had to be tied up to prevent its getting into the driveway. It made a pleasing border, the long, black, slender, shining branches spreading in all directions. As a basket-plant it is unique. In the specimen seen in Mr. Simpson's conservatory the branches drooped gracefully, and on the maturer side of the stems were bunches of its peculiar glistening, wax-like flowers. In the centre of the flower is a black trigynous seed-capsule, characteristic of the Buckwheat family, to which it belongs. It is a native of New Zealand.

A little more than a year ago I made reference in GARDEN AND FOREST to a fine collection of some two hundred plants of the large-flowered Christmas Rose, Helleborus niger maximus, growing in a set of cold frames at Mr. Powers' place at South Framingham. These are now in full bloom and make a beautiful show. There can be no doubt that this is the most satisfactory way to grow these plants. When treated as perfectly hardly plants they are a failure, and even if they endure the winter they seldom bloom. As their natural blooming season is early winter, any flower-buds which move, as they will do during a spell of mild weather, will be sure to be killed. Very little protection has been given these plants of Mr. Powers. They have simply been kept from moving. The foliage is perfect, and, being evergreen, it is essential that it should be preserved. Our plants, exposed on the rock garden, are cut down every year. Since no foliage holds over to sustain the plants when making their spring growth they simply go back more and more, making it only a question of a year or two when they will die out entirely.

Wellesley, Mass. *T. D. Hatfield.*

The Earliest Daffodils.

THE first Daffodils appeared during Easter week. Always welcome flowers these, yet with their appearance there comes the thought that the first flush of the resurrection of plant-life is passed, for these blossoms mark the beginning of a second season and the flowering of the more showy plants than those of the early year. Nature performs her operations on a grand scale, and sometimes rather noisily, but there are none of her changes more impressive than the annual awakening of plant-life. A rare sight is the awakening, when one considers how seldom it can be enjoyed during an ordinary lifetime. I think it has been said that if Nature would usher in the spring-time with a brass band or some such noise mankind would struggle with each other to behold the sight.

Narcissi do not flower in constant order in my garden; it is partly a matter of location as to when they open. N. bicolor and its variety, King Umberto, were the first this year, with Henry Irving second. There are others—N. pallidus præcox, N. obvallaris and N. nanus—in flower now. N. nanus is a pretty little dwarf variety with long trumpets, which should grow out of a carpet made by some low plant, or it might do well in grass. The minute N. triandrus has established itself in the grass on one of my borders, and has not lately failed to flower.

Elizabeth, N. J. *J. N. Gerard.*

Christmas Roses.

HELLEBORUS NIGER is the oldest and best known Christmas Rose, but several other species and many garden hybrids and varieties are now cultivated under this common name. H. niger and its nearest allies bloom in late November and December in favorable seasons, but if there is much dull and cold weather then, as there generally is, the flowering is deferred until spring. It is also true that, even after a fairly good autumnal and early winter bloom, many buds are left which will open in early spring; this is most likely to occur with old and well-established plants. Altogether it is quite fair, in the average New England season, to count the black Hellebores among our early spring-blooming plants. Several fine specimens of the type and its progeny are just now passing out of flower. They are not easy plants to establish—just why it is difficult to tell; it is probable that the trouble comes from our hot and dry summer weather. The plants are received from foreign nurseries in December. They should be planted in pots of moderate size and kept in a cool greenhouse during winter; here, if well grown, they will flower. The growth begins after flowering and continues into late spring and early summer; while growing they require plenty of water and a partially shaded position. After growth stops they should be plunged out-of-doors for the summer, still kept shaded during the middle of the day and well supplied with water. With this treatment they make excellent plants for forcing, giving abundant flowers during November, December or January, in a cool greenhouse, pit or frame. This method of handling, too, seems to be the best to secure good plants for the open ground—that is, they arrive too late in the season for fall planting, but by growing them a year in pots good specimens are procured, which can be planted in September or early October. In this way a larger proportion are likely to live and continue in satisfactory condition. They should be given good soil, a partly shady place, and kept well watered in July and August; a rock-work, with a northern exposure, is by no means a bad position. Almost all the garden varieties are good, and give many shades in color, from pure white to dull purplish red; none of the reds are very bright. Propagation is effected by division and by seeds; both these methods present difficulties not easily overcome by the amateur; it is best to import plants or to procure newly imported plants from the dealers.

Jamaica Plain, Mass. *B. M. Watson.*

Pot Bulbs for Early Spring.

EARLY TULIPS FOR FORCING.—It was once held that only the early Tulips were suitable for forcing, but with me the Bizarres and Byblœmens have proved well adapted to pot-culture. There can be no question that the later ones, with their long flower-stalks and large cup-like flowers, are much the most effective as pot-plants. A little weak manure-water applied once a week after the buds show induces even larger and finer flowers than are borne on garden-grown plants, while the characteristic feathering and flaking, that in the later Tulips reaches perfection, make them especially beautiful.

IXIAS.—These plants, together with their allied companions, Sparaxis and Babianas, are also admirable for late winter and early spring flowers. Desirable as they are for lengthening out the nearly spent season of bloom under glass, there is considerable complaint that they are too uncertain in flowering to be satisfactory. The foliage often turns sickly and yellow, and frequently the plants do not show a single bloom. I am inclined to think that haste in forcing is the cause of three-fourths of these failures. A judicious letting-alone during the first few months of their growth is wholesome for them. Under the benches or beneath a flower-shelf, where they have fairly good light, but not enough to stimulate rapid expansion, is a suitable place through early and midwinter. Then, as the season of their flowering draws near they need to be brought to the light and watered more freely than before. Under this treatment they always give fine flowers and plenty of them.

Pineville, Mo. *L.*

Double English Primroses.—For several years we have grown in the cold frames a few sashes of these flowers for early use in spring, and have been much pleased with them. Bunched like Violets with their own foliage, they are among the most beautiful of early flowers, and would, doubtless, prove almost hardy in sheltered places, though as yet we have not tried them. There are a number of varieties of double Primrose, but these are not to be classed with the Polyanthus, the former having but one flower on a stem, and these double varieties cannot be raised from seed as can the single kinds, but are easily increased in autumn by division. There are many double kinds cultivated in English gardens, all of which would be appreciated here if better known. Hitherto we have only grown the double white, but there are as many as ten or twelve kinds altogether, most of them of very old garden origin, especially the old double Velvet Crimson, which was almost lost to cultivation until recently. The treatment that suits the common single varieties of Polyanthus in summer will also suit the double Primroses. They need a moist shady place in the hot months, division in September in good soil, and protection in winter. If put in a dry place in summer the plants are liable to be a prey to red spider.

South Lancaster, Mass. *E. O. Orpet.*

Cyrtopodium punctatum.—This is one of the most useful of the Orchids now in bloom, and it is so easily managed that no one need hesitate to undertake its culture. Fibrous loam, well-rotted manure and rough sand suit it exactly. The flower-stalks are from two to two and a half feet high, with large panicles of yellow flowers spotted with brown. The flower-spikes and the new pseudo-bulbs begin growth simultaneously. In the fall, after the growths have become thoroughly ripe, the plants should be allowed to rest until they show signs of activity in the early spring. While making growth the plants are much benefited by frequent doses of weak liquid-manure.

Washington, D. C. *O.*

Correspondence.

The Olive and the Lemon in Southern California.

To the Editor of Garden and Forest:

Sir,—In California's rapid development of fruit-production during the past ten years, two articles of great and growing consumption have been, until recently, almost entirely neglected. These are the olive and the lemon. Their history aptly illustrates the steps by which experience teaches the horticulturist in a new country the way to a profitable market. It shows, also, that the mass of men who engage in fruit-growing in such a country as California are unenterprising imitators, and that the few who have the courage and the skill to venture into a new field frequently reap almost incredible rewards before their monopoly is disturbed by their slower and less original rivals.

For a long time Mr. G. W. Garcelon, of Riverside, made a small fortune every year from lemons, while other growers made nothing. His lemons were fine, even-sized, well-colored, juicy, salable fruit. Other growers produced only a coarse, half-cured, worthless article. Mr. Garcelon sold most of his annual crop in San Francisco, frequently receiving five dollars a box. As from five to ten boxes to the tree is by no means an extraordinary yield, and seventy trees to the acre is a moderate planting, it is clear that his profits were very large. He was supposed to possess some secret and potent process of curing. Individuals and the state tried for a long time, without avail, to buy this secret, offering large sums for it. Two or three years ago Mr. Garcelon voluntarily divulged it for the good of the country, and since then more Lemon-trees have been planted than in all the years before. The secret proved to be only a very careful process of selecting, picking and handling the fruit and curing it at an even temperature and very slowly. The lemons remain in the curing-room from six to ten months.

The history of the olive was similar. The Messrs. Kimball, at National City, near San Diego, and Mr. Elwood Cooper, at Santa Barbara, realized great profits from olives. They sold the oil at from one dollar to two dollars per quart bottle. The output of Mr. Cooper's orchard of one hundred acres was, in 1891, 34,000 bottles. Yet, notwithstanding these reassuring facts, the ratio of lemons to California's entire orchard acreage, in 1892, was only one in forty. That of olives was even less, being one in fifty. This ratio has been somewhat increased by the plantings since 1892. The ratio of oranges, on the other hand, was three in twenty, a proportion which has decreased since 1892.

The Lemon is a more tender tree than the Orange, and more susceptible to injury from frost. For this reason sheltered, sunny locations must be sought for it. About San Diego there are thousands of acres of mesa and valley lands which are practically frostless. Many acres of these have recently been planted to Lemons and Olives, and more would have been planted had there been an adequate water-supply assured. San Diego has progressed so far in this direction that it has announced for this month the first Lemon Fair in the history of the state. At this fair the results achieved by the growers of San Diego County will be shown, and the latest methods of curing the fruit will be illustrated. For this purpose, certain enterprising growers have visited the lemon-growing districts of the Mediterranean, and have studied the curing methods in vogue there, which will be compared with home methods. Next to San Diego County, the Ojai Valley and other districts in Ventura and Santa Barbara Counties, Pomona, in Los Angeles County, and portions of San Bernardino County have been the principal centers of the increase in olive and lemon growing. In the production of olives they have gone ahead of San Diego.

The Lemon is, in a sense, a perennial bearer. The flowers and the green and ripening fruit are all seen upon the tree at the same time. The same statement has frequently but falsely been made in reference to the Orange-tree. The principal blossoming of the Lemon-tree, however, is in May, and the fruit is ready for picking in November. It is now usually kept in curing-rooms until the warm weather of the following summer creates a market for it. In this respect, again, the Lemon differs from the Orange, for the latter tree requires nearly a year to mature its fruit. The principal varieties grown in California are the Lisbon, the Eureka and the Villafranca, each of which has its advocates. The industry is yet in its infancy. Its present status is illustrated by the results from seventy trees owned by one of my friends, whose trees are seven years old. They bore last year a crop averaging five boxes to the tree, and the crop was sold at $1.15 per box, on the tree. This fruit was purchased by dealers from San Diego, who shipped it to that city to be cured there for shipment east. For the year ending with June, 1894, lemons to the value of $4,285,000 were imported into the United States. As compared with this total, the California product was an infinitesimal quantity.

A great many varieties of Olives have been tried in California, but the Mission, brought to the country by the Catholic Padres more than a century ago, still holds the lead. It is much smaller than the imported Queen olive, and it is permitted to become nearly ripe before it is picked. Its flavor is very different from that of the Queen, and at first is not usually relished as well. One soon acquires a taste for it, however, and in the local markets it is rapidly driving out the imported article. These olives have brought, at wholesale, this season, from sixty to eighty cents a gallon. It is very difficult to estimate the average product, but sixty gallons to the tree is not unusual in mature orchards.

The production of oil from the olive, whether on a large or small scale, is a very simple and inexpensive process. The essentials are a press of some sort, the more powerful the better, and great attention to cleanliness. The question of consumption of olive oil is largely influenced by the numerous adulterations upon the market, which are very extensively used. On account of their cheapness even druggists employ them in the preparation of prescriptions. Recent state legislation to prevent the sale of these imitations was easily evaded by the dealers who labeled their wares salad oil. The taste of the average consumer has been vitiated in this respect as in everything else, and many prefer a half peanut or cotton-seed oil to the pure olive. The hygienic value of the latter is very great, and its increased use in the kitchen in the place of fat compounds, would undoubtedly lessen the prevalence of dyspepsia. Besides, as an article of diet it is clean and refined. If these truths could be impressed upon the American people, there would be a market for all the olives and olive oil that California could possibly produce. As the case stands to-day, the question of profit from olives is disputed. "Plant olives for your grandchildren" is an Italian proverb frequently quoted in California. Yet, instances of an average production of fifty pounds from five-year-old trees, grown entirely without irrigation, have recently been reported. From such instances some growers argue that the Olive will grow upon any kind of soil and with but little care. Others claim that it needs good soil and plenty of water and attention, and that its slowness in coming into full production makes a heavy drain upon the purse, and doubtless the latter view is the safer, all things considered. Yet, when full grown, the Olive is a very beautiful, hardy, long-lived and productive tree, and an orchard of such trees would be no mean inheritance for anybody's grandchildren.

Redlands, Calif. *Wm. M. Tisdale.*

Notes from West Virginia.

To the Editor of Garden and Forest:

Sir,—Nothing that blooms at this season of the year is more beautiful than the flowering fruit-trees. At Rose Brake these are freely planted for ornament; here, a group of Flowering Apples; there, Wild Cherries and the Japanese varieties; over yonder, a mass of Chinese and Japanese Cydonias, while close to the house are planted Apricots, Nectarines and Hard-shell Almonds.

But, perhaps, the most beautiful group is composed of Flowering Peaches. The variety that is employed has large double blossoms of a rich carmine color. These bloom late in April or early in May. The Apricots, Nectarines and Almonds, planted for ornament and to form a screen for some outbuildings, are especially valuable because of their early bloom. The Almonds are the first to flower, and then follow the Apricots, Nectarines and Plums.

The pleasure-grounds during late April and May are thus adorned with very many trees in bloom, and the effect of so many fine groups is very beautiful. We prefer, for the most part, to keep each class of plants by itself. Thus the different varieties of Lilacs are all together in one shrubbery, and our Magnolias have a choice place apart.

In the group of Flowering Plums we have Prunus Pissardii, P. Simonii and P. spinosa, and several other varieties. Of these the Chinese Double-flowering Plum is the last to bloom in company with the dwarf Flowering Almonds, which it slightly resembles.

Of all these charming trees, perhaps, our favorite is the Japanese Weeping Cherry. It is so graceful in habit of growth, picturesquely irregular at the same time, that it is symmetrical, but not tamely so. It is unique among trees, and I do not

wonder that it is the favorite weeping tree of Japan. Our single specimen is about fifteen feet in height, and is now covered with buds of a fine shade of deep carmine, which a day of warm sunshine will develop into delicate pink bloom.

In a wild portion of the grounds ledges of limestone rock adorn the sides and crown the summit of a little hill, and here many Red Cedars have sprung up of their own accord. These form a beautiful background for the large-flowering Dogwood, Cornus florida, and Red Bud, associated so generally in our woods against just such a dark screen of evergreen foliage, and surrounded, as here, by Columbine and lichen-covered rocks. This is our natural rockery, and here we think cultivated plants would be out of place. This is the spot for Ferns and our native wild flowers, such as Blood-root, Twin-leaf, Hepaticas, Anemones, Dicentras and Violets. These are all now in bloom. The only flower not found in our neighborhood, which has here a place, is the single white, fragrant, English Violet, and this is very charming, naturalized in the grass, where it grows and increases rapidly.

Following upon three early springs, this April of 1895 seems abnormally late, but is not really so. For a number of years I have noted the time of flowering of many plants at Rose Brake. To take, for instance, the Forsythias, I find in my notebook, that they began to open their golden bells in 1888 on the 17th of April; in 1889 they commenced to bloom on the 16th; in 1890 they bloomed on the 14th of April; in 1891 they were beginning to flower on the 15th; in 1892 I found their first flowers on the 8th; in 1893 on the 7th, and in 1894, that exceptional and treacherous spring, they were in full bloom by the 24th of March! This year a few buds opened on the 13th of April. At the date of this article, which is the 17th, they are not yet in full bloom.

Chimonanthus fragrans is the first shrub to flower in our garden. Only one bud on a bush about three feet high survived the terrible cold of the past winter. One solitary bloom opened early in March. This is with us the first fragrant flower of the opening year. Almost all the earliest flowers are scentless, such as Jasminum nudiflorum, the Forsythias and many bulbs. But Violets, Hyacinths and fragrant Narcissus follow quickly in their train. However, the earliest Narcissus that blooms here is scentless, and is a few days in advance of the fragrant varieties. I think it is N. princeps, and it blooms a little later than the first Crocuses and Snowdrops. Chionodoxa Luciliæ is now at its best, and so are many Hyacinths. Peaches are venturing a few blossoms in this neighborhood, but the nights are still cold, and we are not beyond the danger of heavy frost.

Rose Brake, W. Va. *Danske Dandridge.*

Some Hyacinths and Grape Hyacinths.

To the Editor of Garden and Forest:

Sir,—It may help some of your readers to identify the plant described in Garden and Forest for April 10th as Hyacinthus ciliatus (Muscari azureum), if they are reminded that it is more commonly known in gardens as Hyacinthus azureus. It was first described by Baker as Muscari lingulatum, under which name it has been previously described in Garden and Forest. It has the habit of Muscari, with the campanulate flowers of the Hyacinth, and is evidently one of the hybrids common in the Lily family, and Baker, in the *Journal of the Linnæn Society*, vol. ii., page 427, named it H. azureus. It was figured with a colored plate in *The Garden*, August 10th, 1889. It has been collected in the Caramanian and Cilician Taurus, and is sometimes offered in trade-lists as Muscari azureum (Fenzl.) While its effect is that of a rich azure blue Grape Hyacinth, a slight examination will show that the individual flowers are dissimilar. It flowers here with the second early Snowdrops, and is valuable for its earliness as well as its rare color. It usually produces seeds, and with these and offsets a stock should be worked up to form a good colony, as it will require a few score of plants to secure a good effect in the border.

There is a beautiful blue Muscari, M. Scovitzianum, which will not flower for several weeks, which is rather prettier than Hyacinthus ciliatus. It has a larger flowering spike, and the flowers are light blue of the purest, daintiest shade. A collection of Grape Hyacinths should always include the white variety of M. botryoides, which now commences to expand its grape-like flowers. It is difficult to separate the purple Muscari. A variety from the Taurus, which has been established here a few years, is very vigorous usually, and is an intense purple, shading to a lighter color at the top of spike. It is generally a February bloomer, but this season has flowered late and is much smaller than usual.

Hyacinthus amethystinus scarcely flowers until June. Its small bell-like flowers are borne sparsely on graceful scapes about three inches long. They are of a light amethyst-blue. This is altogether a most charming plant. From Mr. Whittall a few years ago came a few stray bulbs of H. lineatus. This seems to be the smallest member of the family. It has two lanceolate leaves, two to three inches long, and a short scape with a raceme of small blue flowers. A dainty plant for a rockery, it would be easily lost in an ordinary garden. It flowers in June.

Elizabeth, N. J. *J. N. Gerard.*

Recent Publications.

The Land Birds and Game Birds of New England, with descriptions of the birds, their nests and eggs, their habits and notes, with illustrations. By H. D. Minot. Second edition, edited by William Brewster. Houghton, Mifflin & Co. 1895. 8vo.

The new edition of Minot's *Land and Game Birds of New England* cannot fail to receive a warm welcome from all students of our birds. The original edition appeared in 1877. Considered as the work of a lad of seventeen, it may fairly be called a remarkable production. Although showing at times immaturity of judgment, its value as a record of original field observation was generally recognized at the time of its appearance, and the appreciation of its merits in this regard has, perhaps, increased with the lapse of time. The character of the work is in the main careful and accurate, and no small skill is frequently shown in conveying the delicate impressions received from out-of-door study. The truth of a passage like the following must be felt by every bird-lover accustomed to afternoon walks in winter:

> From my acquaintance with the Tree Sparrows, I have almost involuntarily learned to associate them with a winter's afternoon drawing to its close, a clear sunset, with, perhaps, dark clouds above, and a rising north-west wind which sweeps across the fields to warn us of to-morrow's cold. The almost mournful chip of these birds, as they fly to their nightly rest, has always seemed to me a fitting accompaniment for such a scene.

A second edition was always contemplated by the author, and after his untimely death the preparation of it was intrusted to our most accomplished field ornithologist, Mr. William Brewster, who has brought to his task the good taste and ripe judgment that have made his editorial work a model of its kind. The original form of the text has been carefully preserved, and embodied in the notes the reader is put in possession of much information as to the general distribution of the birds treated of, together with such additional knowledge of their habits, notes, etc., as has been acquired since the time when the book was written. Such annotations must ensure for the work a fresh career of usefulness.

The book is handsomely printed. It is prefixed by an excellent portrait of the author, together with a simple but touching biographical notice by his father, and a judicious introduction by the editor.

Notes.

Among the plants in flower for Easter decoration in this city were a few examples of Dicentra spectabilis, and very graceful they were.

We have received from Mr. George Hanson, Jackson, California, some flowers of the beautiful yellow Calochortus Benthami, showing that on the foot-hills of the Sierras the flowering season is much in advance of ours, as here the leaves of these plants are just appearing.

During the months of May and June a series of lectures and field-meetings will be conducted at the Arnold Arboretum by Mr. J. G. Jack, for the purpose of giving popular instruction concerning the trees and shrubs which grow in New England. The instruction given is not technical, and a knowledge of descriptive botany is not essential for students. Their purpose is to indicate by comparison the easiest means of distinguishing common native trees and shrubs and of recognizing foreign species. The different species and groups will be studied

as they come into flower, and the ornamental and useful properties, as well as their habits of growth and other peculiarities, will be considered. Any person who desires further information in regard to these lectures may address Mr. J. G. Jack, Jamaica Plain, Massachusetts.

Mr. Joseph Meehan writes from Germantown, under date of April 17th, that the conifers there have, as a rule, suffered very little by the hard winter, the exception being the Hemlock Spruce, which is terribly browned, Cephlotaxus and many of the Yews, which are scorched. Deodar Cedars lost a few leaves on their upper branches, but they are already budding out freely to the very tips of their shoots. The Cedar of Lebanon is also quite unhurt. In sunny places Forsythia suspensa was in full bloom, and so was Magnolia stellata. The early-flowering Bush Honeysuckles, Cornus mas and Daphne Mezereum, are everywhere in flower.

It is well known that the common evergreen Live Oak, of California, Quercus agrifolia, is preyed upon in the neighborhood of San Francisco Bay by caterpillars of the California Processionary Moth, Clisiocampa Californica, which often devour the leaves once and sometimes twice during the summer and have given many of the trees an abnormal mushroom-like shape by stunting their growth. Professor E. W. Hilgard, of the University of California, calls our attention in a private letter to the fact that the caterpillars of another moth, Phrygandia Californica, which also devour the leaves of Quercus agrifolia, are defoliating the plants of the European Oak planted at Berkeley, although they do not often attack the California White Oak, Q. lobata, which is botanically closely related to the European species. Curiously enough, horses and cattle never browse on the foliage of the California White Oak, although the branches of this tree, which are pendent and often sweep the ground, are very accessible to them, but they will stand on their hind feet to devour the young shoots of the European species.

Some interesting investigations have been made at the South Dakota Experiment Station on the distribution of weed-seeds by winter winds. For example, the contents of snow-drift on plowed land two feet square, three inches deep and ten rods from any standing weeds, were melted, and thirty-two weed-seeds belonging to nine species were found in it. Other tests confirm the fact that seeds are carried great distances upon the snow. Another test was made by pouring half-bushel piles of oats and millet upon the snow-crust when the wind was fifteen miles an hour. Both millet and oats passed a point twenty rods from where they had been placed in forty seconds. A twenty-five-mile wind was found to drift wheat-grains thirty rods in a minute. Of course, when winds on the plains keep blowing in one direction for days, seeds will travel many miles. The moral of these investigations seems to be that in the great western plains, at least, bare summer fallowing and matured weeds in waste ground may help to scatter seed during the winter over great areas, and they will be buried in the soil when the snow melts.

In the April issue of *The Botanical Magazine* a plate is devoted to Magnolia parviflora, one of the species introduced into this country nearly a quarter of a century ago by the late Thomas Hogg, and largely propagated at the Parsons' Nursery at Flushing, but apparently only recently known in Europe. It is said in the description which accompanies the plate to be a native of the alpine regions of the Japanese Island of Nippon, or, as the Japanese usually call it, Hondo, where it is said to grow on the Hakone Mountains, on Hego-San, and at the foot of the volcano of Wunyen, the two last being localities we do not find in the gazetteers or in Mr. Chamberlain's excellent *Guide Book of Japan*. The best Japanese botanists, however, who have in recent years carefully explored the forests of Hondo do not believe that this is a Japanese plant, but, like M. conspicua, M. Watsoni and many other plants which they only know in gardens, that it was introduced from China, which, at the time of the introduction of the Buddhist religion, sent to Japan most of the plants which they had been cultivating in their gardens for nearly a thousand years.

There is but a small amount of wood in a broom, but so many millions of these implements are used every year that the consumption of wood for broom-handles is a considerable item. *The Southern Lumberman* states that while it would have been almost impossible to sell a broom-handle made of heavy hardwood a few years ago, at present the reverse is true. The manufacturer prefers hardwood because it does not require so large a bolt, can be turned down smaller and yet retain sufficient strength, and can be ornamented more cheaply and artistically. Brooms with hardwood handles sell more readily and do not deteriorate in appearance like the soft wood handles. Any kind of inexpensive hardwood, such as Beech, Birch, Maple or Ash, makes acceptable handles, while springy woods like the Elms are not salable, because one essential feature of a good broom is a straight handle. The manufacture of broom-handles can only be made profitable when the timber runs largely clear. In the eastern states the timber waste in making broom-handles exceeds fifty per cent., while in the south-west it is usually less than twenty-five per cent. There are four factories in Amsterdam, New York, one of which has a capacity of 1,200 finished brooms a day. They use hardwood handles from the south and west and get them for less than the bolts ready for the lathe can be furnished from native hardwood. The handles are turned green and dried afterward. The large end on which the brush is wired must be thoroughly dry or the broom will work loose. The drying of the upper part of the handle is of less consequence, except in the saving of freight.

Strawberries from Florida are scarce enough to make prices high, and the best fruit, which is coming from the vicinity of Lawtey, in that state, sold on Monday for sixty cents a quart. A few strawberries have already been received from as far north as Charleston. Mediterranean oranges are advancing in price, but much of this fruit is still coming at a loss. Altogether, 110,000 boxes of Sicily oranges and lemons were sold here during last week. Some California mandarins, small, but of good flavor and quality, bring twenty-five cents a dozen, and grape fruit from Jamaica costs ten to twenty-five cents apiece. Fully 50,000 bunches of bananas were disposed of last week at auction at high prices. Six cases of grapes from the Cape of Good Hope, via England, were sold here last Wednesday; while they arrived overripe and not in the best condition for want of proper packing, the experiment will again be made next season. Nectarines and grapes from South Africa reach England in perfect order, and peaches from the same remote place have been sold in this city in midwinter at $3.00 each. Above 150 000 bushels of Australian and Tasmanian apples have been imported into England this year, the season continuing for six weeks from the first of March. The fruit is shipped in cases containing one bushel. The original cost of these apples is eighty-seven cents to a dollar a bushel, the freight for transportation covering 12,000 miles is $1.00 more, and, with other expenses added the fruit stands at $2.12 to $2.25 a case when offered to wholesale buyers in the English market. With American apples, these are considered the best apples imported into England. The American export season for apples is almost ended, and above 1,440,000 barrels have left this country for Europe since last August.

Although the Japanese Anemone was introduced into European gardens fifty years ago, and the famous white sport from its variety, Elegans, known as Honorine Jobert, was disseminated as long ago as 1863, there have been few variations from these old forms, owing to the fact that the plant, as we know it, rarely, if ever, produces fertile seed. Mr. Emile Lemoine, in an interesting letter to *The Garden*, once more invites attention to the fact that the variety Lady Ardilaun is a true seedling. This plant was raised by Mr. Campbell, gardener to Lady Ardilaun, who, nine or ten years ago, observed a head of seed on a plant of the white-flowered A. Japonica. This seed was sown, and of the three seedlings thus produced one was conspicuously better than the others, having pure white flowers of great size and substance, a taller growth than Honorine Jobert, thicker stems and larger leathery leaves. A remarkable thing about this variety, which was called Lady Ardilaun, is that it produces seed which ripens readily in the open air. Mr. Lemoine sent out a seedling of this plant last year, which bore a semi-double flower at the same time that the American Anemone, Whirlwind, was sent out. He has other seedlings now under observation, and since this sudden change in the habit of the plant—that is, since it has become fertile and seed-bearing—we may, without doubt, look forward to a great many new varieties, single, double and semi-double. Mr. Lemoine describes a plant exhibited last autumn with stems as thick as a lead-pencil, perpendicular, and bearing numerous flowers which stand erect on firm foot-stalks. These flowers are formed of three or four rows of undulated and hooded petals, looking like little cups. Sometimes there are sixty of these petals in a single flower. The color of the flower is creamy white, passing into pure white, and it is three and three-quarter inches in diameter. Of course, where forms are constantly changing we may look for some improvements, although it would be difficult to imagine any flower which can excel in purity of color and grace of bearing the white-flowered Japanese Anemone as we know it.